

REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, are respectfully requested.

At the outset, Applicants thank Examiner Langel for his time and consideration in participating in a telephonic interview with Applicants' representative on March 19, 2004. The Interview Summary mailed March 24, 2004, accurately reflects the substance of the interview.

Applicants note with appreciation the indication that claims 4 and 10 would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims (Official Action at page 4).

By the above amendments, claims 2, 4 and 10 have been canceled without prejudice or disclaimer. Claim 1 has been amended to incorporate the features of claims 2 and 4 therein. Claims 3, 7, 11 and 13 have been amended to depend from claim 1 in light of the cancellation of claims 2 and 4. Claim 21 has been amended for clarification purposes to incorporate subject matter from original claims 2 and 4.

In the Official Action, claims 1-3, 5-9, 11-19 and 21 stand rejected under 35 U.S.C. §112, first paragraph, for the reasons set forth at pages 3 and 4 of the Official Action. Without addressing the propriety of this rejection, it is noted that the present rejection is moot in light of the above amendments in which claim 1 has been amended to incorporate the subject matter of claims 2 and 4. For at least this reason, withdrawal of this rejection is respectfully requested.

Claim 20 stands rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,488,838 (*Tonkovich et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

According to one aspect as defined by claim 20, a process for the production of a mixture comprising hydrogen and CO is provided. The process comprises partially oxidizing a hydrocarbon by an oxygenated medium or a medium capable of releasing oxygen, wherein the process is carried out under autothermal conditions, the heat given off by said oxidation being recovered to maintain the endothermic reactions which take place between a nonoxidized fraction of said hydrocarbon and CO₂ and steam produced by said oxidation, wherein a flow of a reaction gas mixture comprising the hydrocarbon and the oxygenated medium or medium capable of releasing oxygen, is introduced into a reactor containing a porous medium which has been preheated beforehand, and wherein the introduction of the reaction gas mixture into the porous medium results in heating the reaction gas mixture by heat exchange with the porous medium to a temperature sufficient to initiate a combustion reaction, and wherein the entire flow of the reaction gas mixture is introduced into the porous medium.

Tonkovich et al does not disclose or suggest each feature of one aspect as defined by claim 20. For example, *Tonkovich et al* does not disclose or suggest that the entire flow of the reaction gas mixture is introduced into the porous medium, as recited in claim 20. In this regard, *Tonkovich et al* discloses that a “significant advantage” of its process is the reduced pressure drop obtained by the reactant flow passing and contacting the porous structure, but not being required to flow through the porous structure (col. 2, lines 51-54). It is clear that *Tonkovich et al* teaches away from introducing the entire flow of reactant into the porous structure thereof, because *Tonkovich et al* discloses that the aforementioned significant

advantage is achieved when the reactant is not required to flow through the porous structure. As such, one of ordinary skill in the art would not have been motivated to modify *Tonkovich et al* by introducing the entire flow of the reaction gas mixture into the porous medium.

The Patent Office has alleged that “negative teachings nevertheless constitute teachings upon which a *prima facie* case of obvious may be based” (Official Action at page 2). To the extent the Patent Office has alleged that a *prima facie* case of obviousness can be based on a prior art disclosure which teaches away from a claimed feature, as in the present case, Applicants respectfully but strenuously disagree. In this regard, it is well established that a modification proposed by the Patent Office cannot change the principle of operation of a reference. See M.P.E.P. §2143.01. Here, *Tonkovich et al* teaches that a significant advantage of the process thereof is the reduced pressure drop achieved by flowing the reactant to pass and contact the porous structure and not requiring the reactant to flow through the porous structure. Contrary to *Tonkovich et al*'s teaching, however, the Patent Office has suggested modifying *Tonkovich et al* to introduce the entire flow of the reactant into the porous structure. Clearly, such modification would result in an impermissible change in the principle of operation of the reactant flow as disclosed by *Tonkovich et al*.

Furthermore, it is noted that M.P.E.P. §2143.01 states that the prior art must suggest the desirability of the claimed invention. In the present case, *Tonkovich et al* has no disclosure or suggestion of the desirability of introducing the entire flow of the reaction gas mixture into the porous medium, and in fact teaches away from such claimed feature.

The Patent Office has alleged that because *Tonkovich et al* discloses that sufficient reaction occurs due to the net flux through molecular diffusion into and out of the porous structure, “[s]uch disclosure would suggest that more reaction would occur if the entire flow of the reaction gas mixture would be introduced into the porous medium” (Official Action at

page 3). However, *Tonkovich et al* has no recognition or suggestion that "more reaction" in the process thereof is in fact desirable or necessary, but rather discloses that a sufficient amount of reaction already takes place (col. 2, lines 54-57). Moreover, as discussed above, *Tonkovich et al* teaches away from introducing the entire flow of the reactant thereof into the porous structure. Accordingly, it is apparent that one of ordinary skill in the art would not have been motivated to modify *Tonkovich et al* by introducing the entire flow of the reaction gas mixture into the porous medium.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness has been established. Accordingly, withdrawal of the §103(a) rejection is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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